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## **Installation Note**

**Agilent Technologies**  
**8514A/B, 8515A,**  
**8517A/B, 85110A/L**  
**Test Set DC Return Upgrade Kits**



**Manufacturing Part Number: 08510-90504**

**Printed in USA**

**Print Date: October 1995**

**Supersedes 08510-90503**

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Installation Note  
**HP 8514A/B**  
**HP 8515A**  
**HP 8517A/B**  
**HP 85110A/L**

**Test Set DC Return**  
**Upgrade Kits**



HP Part No. 08510-90504    Supersedes:08510-90503  
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Santa Rosa Systems Division, 1400 Fountaingrove Pkwy, Santa Rosa, CA 95403-1799

## Test Set DC Return Upgrade Kits

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INSTRUMENTS AFFECTED:	HP 8514A/B S-parameter Test Set HP 8515A S-parameter Test Set HP 8517A/B S-parameter Test Sets (option xx7 series not needed) HP 85110A/L S-parameter Test Sets and Upgrade Kit
SERIAL NUMBERS:	HP 8514A = All Serials HP 8514B = <2918A00908 HP 8515A = <2820A02135 HP 8517A = All Serials HP 8517B = <3346A00180 HP 85110A = <2929A00260 HP 85110L = <3235A00111
APPLICABLE SERVICE NOTES:	HP 8514A-04 HP 8514B-01 HP 8515A-04 HP 8517A-01 HP 8517B-01 HP 85110A-01 HP 85110L-01
TO BE PERFORMED BY:	HP-Qualified Personnel

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### Purpose

This installation note documents the recommended procedure for installing the Test Set D.C. Return Upgrade Kits, for Use With HP 8510C Firmware Rev C.07.00 or greater. This procedure is to eliminate an HP 8360 series source over-modulation error.

**Table 1-1.**

Instrument	D.C. Return Upgrade Kit HP Part Number
HP 8514A/B	08510-60119
HP 8515A	08510-60119
HP 85110A	08510-60119
HP 8517A	08510-60122
HP 8517B	08510-60118
HP 85110L	08510-60121

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## Problem Description

The HP 8514A/B, HP 8515A, HP 8517A/B, and the HP 85110A/L test set switch splitter/switch driver circuits generate a pulse each time the switch splitter switches between port 1 and port 2.

These pulses get capacitively coupled through the switch splitter and into the HP 8360 series source. The source ALC loop reacts to the pulses so that the HP 8360 generates an over-modulation error. This error gets reported to the HP 8510C when using the power domain feature. This feature is included with the HP 8510C rev C.07.00 or greater firmware. The error can not be turned off, or ignored because all power errors must be reported when using power domain, it is part of the firmware definition.

Since the HP 8510C allows ample setting time, this over-modulation error will not cause any measurement error in most cases, but will display the over-modulation caution message on the CRT of the HP 8510C. If you return the HP 8360 power level to the recommended +10dBm setting, and use attenuators on the RF output, and if you need less RF power to your device under test, the over-modulation error will be eliminated. If the customer is not happy with these workarounds please install the appropriate upgrade kit.

These switching pulses were not a problem when the HP 8360 used a directional coupler for its ALC loop. The coupling arm filtered out the pulses so that the ALC loop response not affected. The HP 8360 now uses a directional bridge instead of a directional coupler. The bridge detector does not filter the pulses.



### Affected Prefix Breaks

The following table lists prefix breaks for the HP 8360 series that changed from a directional coupler to a bridge detector. The HP 8510C instruments with the HP 8360 series couplers *do not* need these upgrade kits.

HP Models	Coupler to Detector Conversion Prefix
HP 83620/22/30/50	Prefix equal to and greater than 3245A
HP 83621/31/51	Prefix equal to and greater than 3139A
HP 83623/24	Couplers only

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## Supplied Parts

The following tables list the parts supplied in the Test Set Upgrade Kits.

### For HP 8514A/B, HP 8515A and HP 85110A

#### HP 08510-60119 Upgrade Kit

Quantity	Description	HP Part Number
1	D.C Return	5063-0690
1	RF Cable	08514-20159
1	Installation Note	08510-90504

### For HP 8517A

#### HP 08510-60122 Upgrade Kit

Quantity	Description	HP Part Number
1	D.C Return	5063-0691
1	RF Cable	08517-20056
1	Installation Note	08510-90504

### For HP 8517B

#### HP 08510-60118 Upgrade Kit

Quantity	Description	HP Part Number
1	D.C Return	5063-0691
1	RF Cable	08517-20056
1	Installation Note	08510-90504

### For HP 85110L

#### HP 08510-60121 Upgrade Kit

Quantity	Description	HP Part Number
1	D.C Return	5063-0690
1	RF Cable	85110-20342
1	Installation Note	08510-90504

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## Procedures

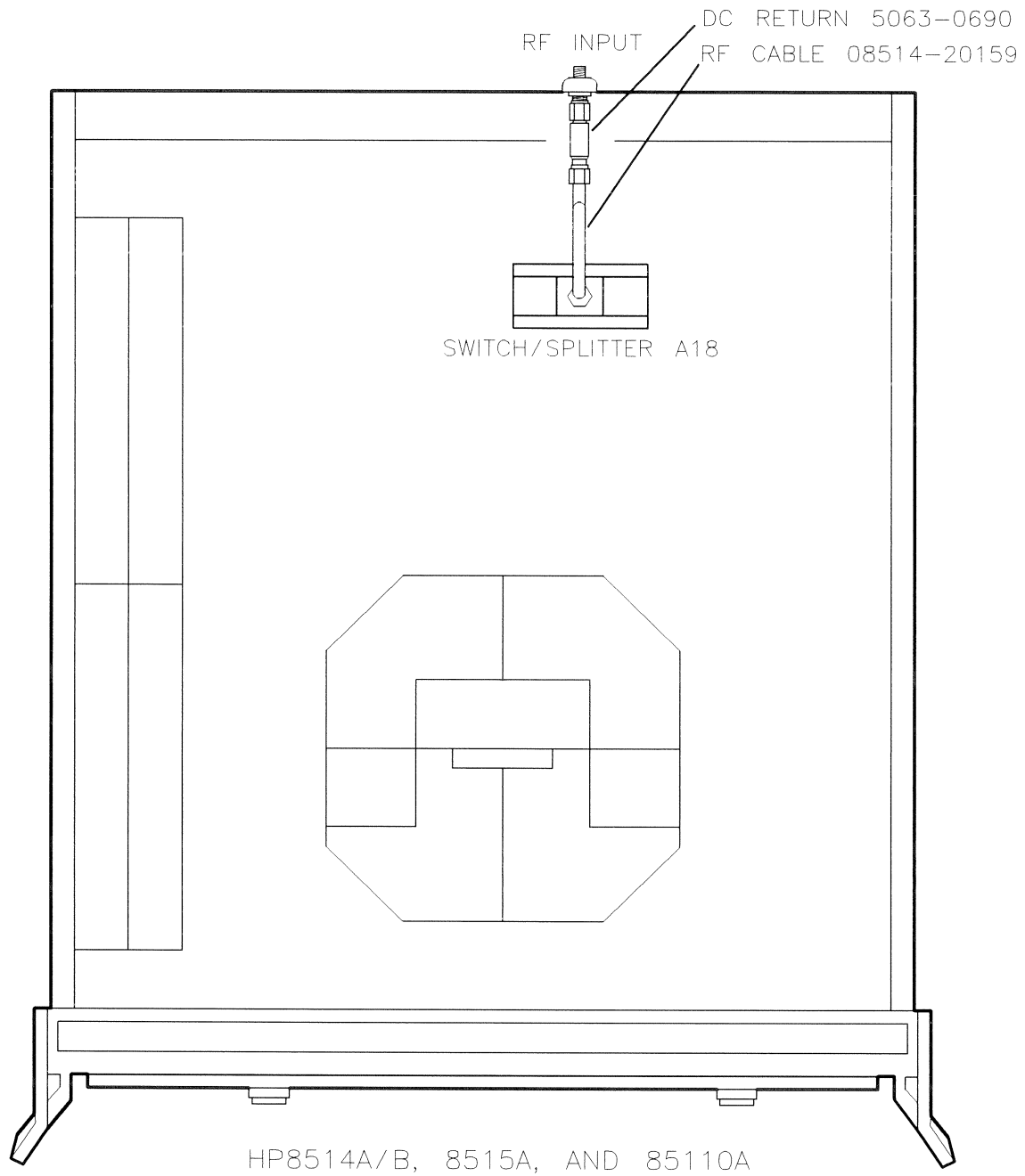
The following figures contain installation procedures for the appropriate test set.

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**CAUTION** Electrostatic discharge (ESD) can damage or destroy electronic components. For further information regarding ESD precautions, see the section on ESD in the Service Manual for your instrument.

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**For HP 8514A/B, HP 8515A and HP 85110A**

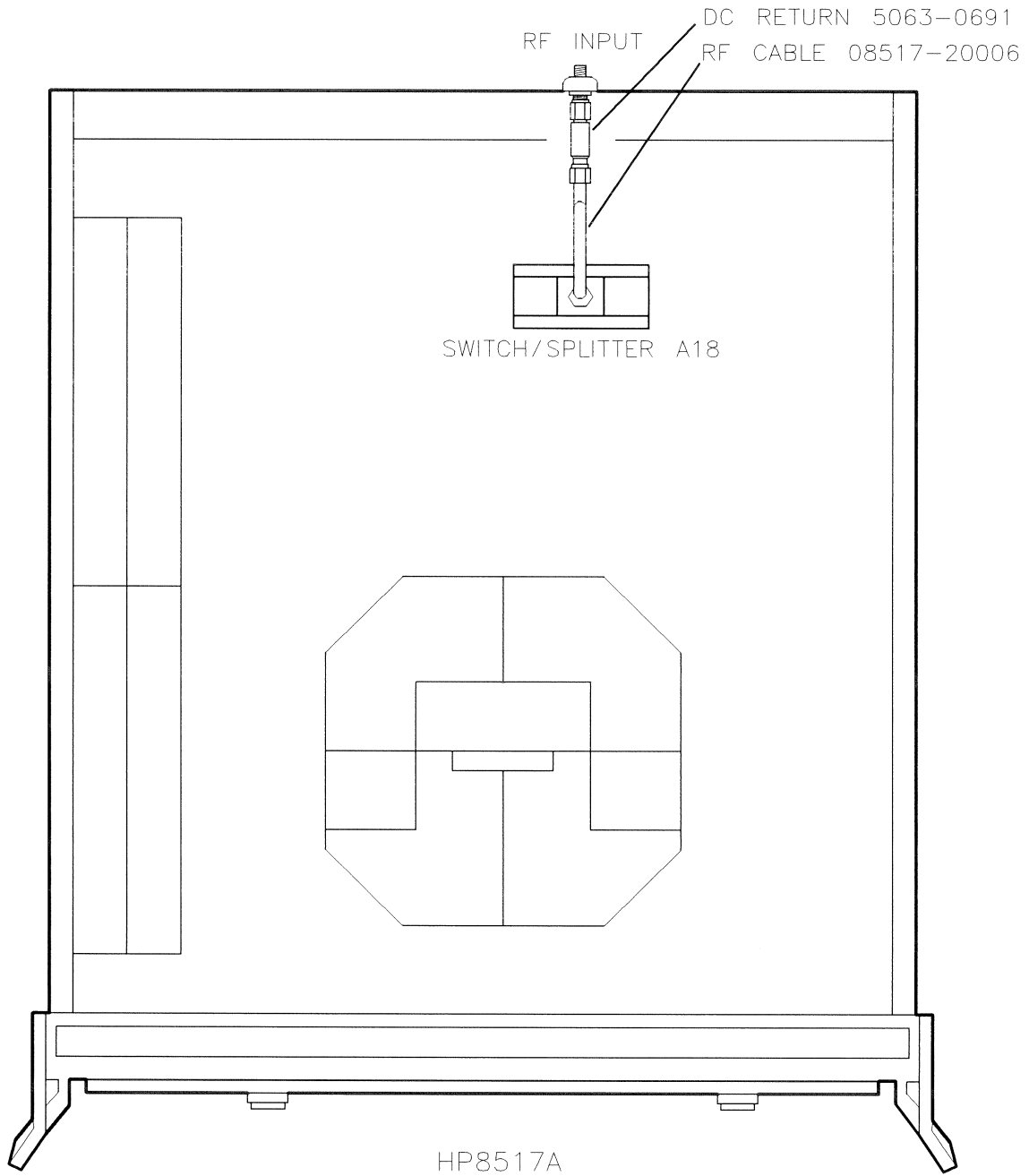


jb1\_d

1. Remove old RF input cable going from RF input connector to switch/splitter, A18.  
Replace with cable and D.C. return as shown.

**Figure 1-1. HP 08510-60119 D.C. Return Upgrade Kit.**

**For HP 8517A**

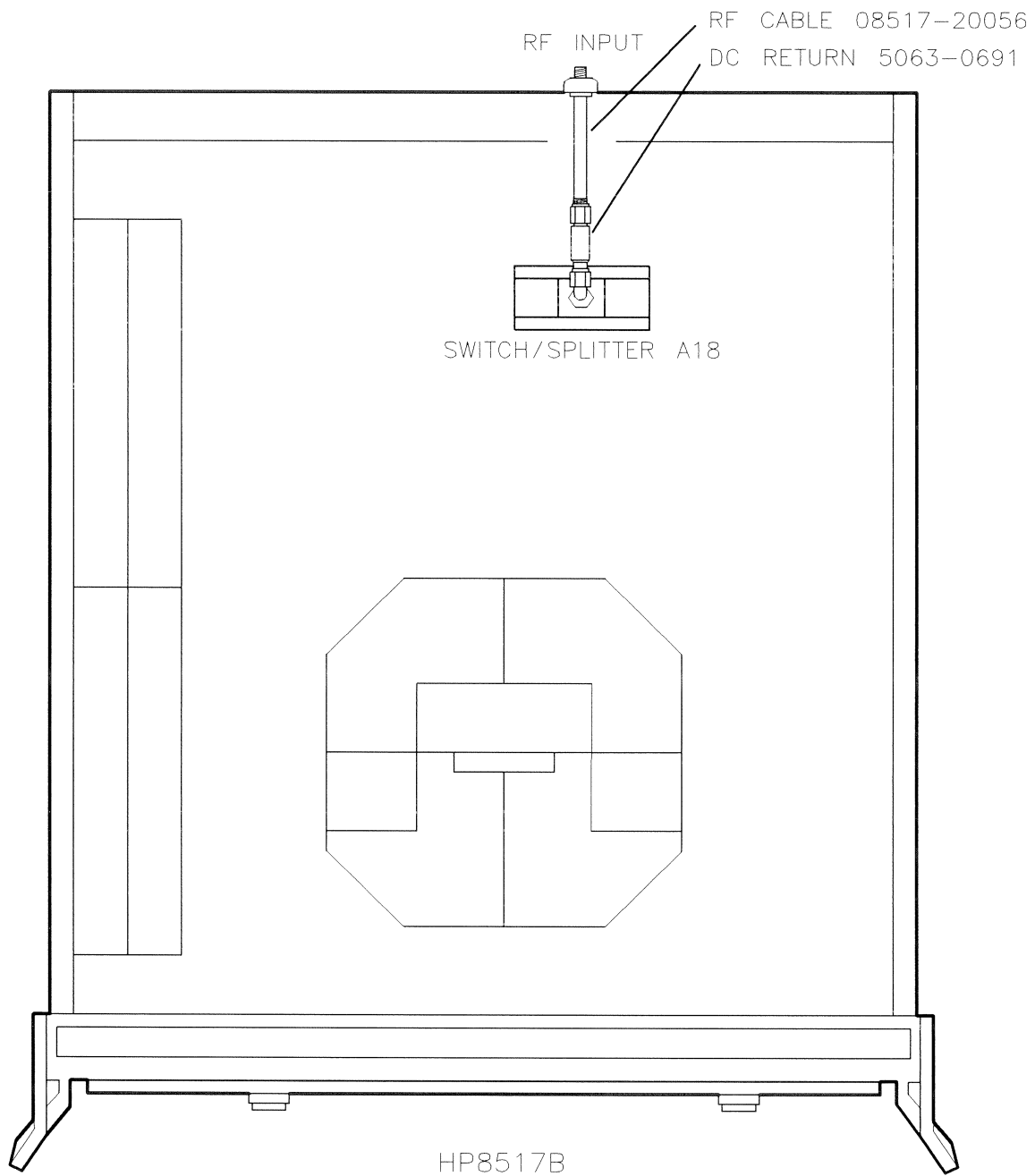


jb3\_d

1. Remove old RF input cable going from RF input connector to switch/splitter, A18. Replace with cable and D.C. return as shown.

**Figure 1-2. HP 08510-60122 D.C. Return Upgrade Kit.**

**For HP 8517B**

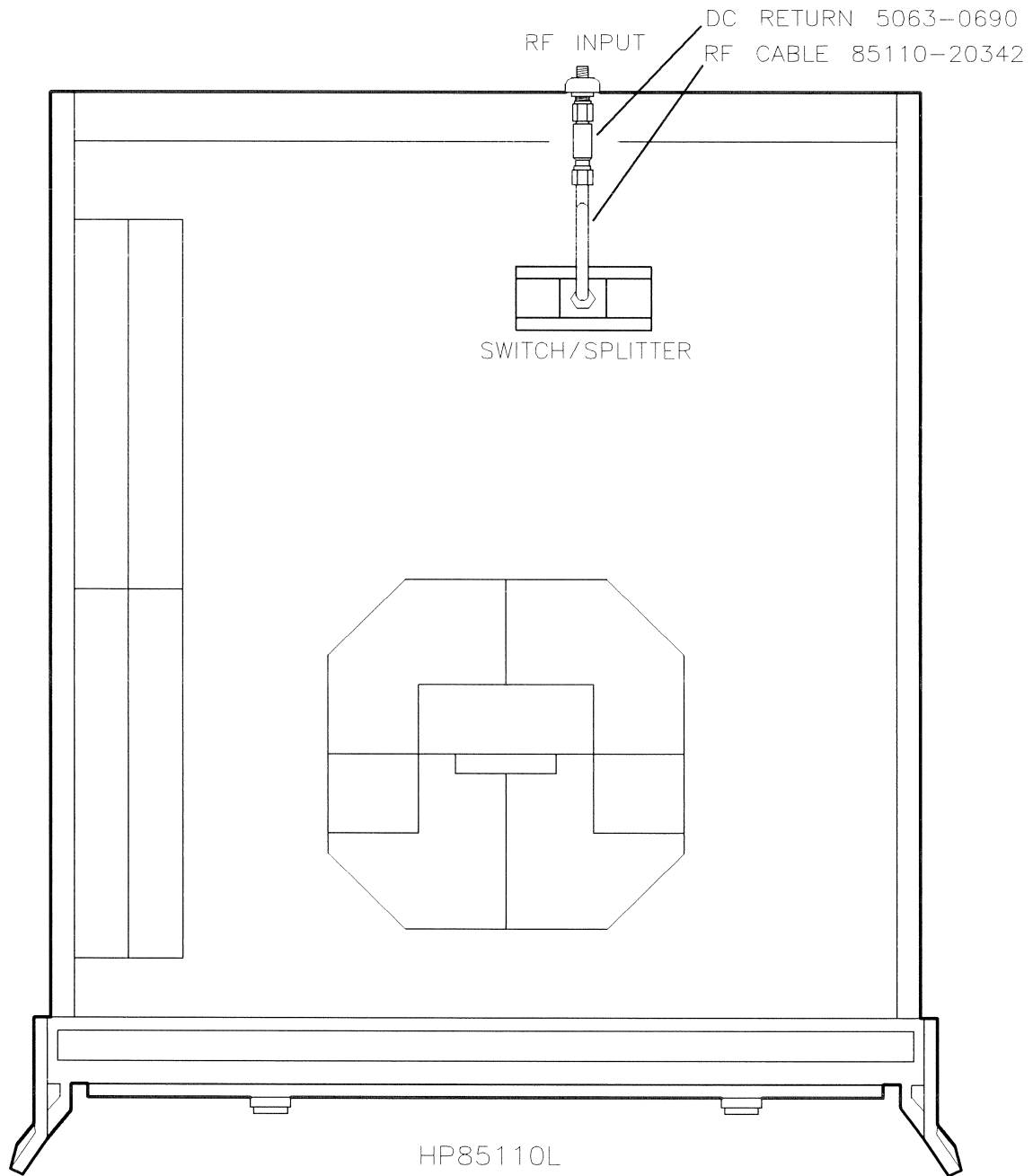


jb2\_d

1. Remove old RF input cable going from RF input connector to switch/splitter, A18. Replace with cable and D.C. return as shown.

**Figure 1-3. HP 08510-60118 D.C. Return Upgrade Kit.**

**For HP 85110L**



1. Remove old RF input cable going from RF input connector to switch/splitter, A18.  
Replace with cable and D.C. return as shown.

jb4\_d

**Figure 1-4. HP 08510-60121 D.C. Return Upgrade Kit.**

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## Performance Check

### D.C. Return Upgrade Kit Functional Check

To check the performance of the following upgrade kits, simply plot the 4 raw channel powers before and after the upgrade is installed. Be careful to look for power holes and discontinuities. The new raw channel level for  $a_1$ ,  $a_2$ ,  $b_1$ ,  $b_2$  should be more than  $\pm 1\text{dB}$ . For instructions on how to do these functional tests please see “Unratioed Power Failures” in your HP 8510C *On-Site Service Manual*.





Customer Order Number

For Agilent Internal Reference Only

Manufacturing Part Number



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